Submission to the
Senate Community Affairs Committee

Inquiry into the Legislative responses to Recommendations of the Lockhart Review

DO NO HARM – Australians for Ethical Stem Cell Research
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1. Summary of Reasons to reject the Review and the Bill

An unethical proposal:

The Lockhart Review ('the Review') and the Patterson Bill ('the Bill') propose an action which is unethical: the deliberate creation of human embryos to be destroyed in research.

- This violation of essential ethical principle, and basic humanity, is sufficient reason in 2006, as it was in 2002, to reject the Review and the Bill.

A dehumanizing intent:

In order to persuade people that this unethical action of 'creating embryonic humans in order to destroy them in research' is not, in fact, unethical, it has been necessary in both the Review and the Bill to use deceptive language and false embryology to *dehumanize* the embryo created by cloning.

- This reliance on falsehoods, and this disturbing attempt to exclude the cloned embryo from the circle of human care, is further reason to reject the Review and the Bill.

Systematic deception:

In order to generate popular and Parliamentary demand for cloning sufficient to overturn the current ban, it has been necessary to portray stem cell science in a false and misleading way which 'hypes' cloning and downplays ethical alternatives.

- This systematic deception of legislators and the public is further reason to reject the attempts to legalise cloning contained in the Review and the Bill.

An unrepresentative Review:

In order to promote the unrepresentative views on cloning held by the members of the Lockhart Committee, it was necessary for the Review to misrepresent community attitudes – both by ignoring unwanted evidence such as the only published academic work on public perceptions of cloning, and by recklessly dismissing the validity of 'community standards' on cloning.

- The ethical bias and self-serving sophistry evident in the Lockhart Review, as quoted in the Explanatory Memorandum to the Bill, is further reason to set their unrepresentative recommendations aside.

Scientific fraud and bluff:

In order to present some semblance of a scientific case for cloning, the Review has had to rely on fraud, and the Bill on bluff:

- In the Review, where its sole scientific argument for 'advances in cloning' (Hwang et al) collapsed in the very week of publishing the Review, but no attempt was made to reconsider the now-discredited recommendations!
- In the Bill, where the best attempt to make a case for cloning - the Documents tabled in the Senate by Senator Patterson – is at best barely relevant and in one case highly damaging to the case for cloning!

- The scientific bankruptcy of those who would construct a case for cloning is further reason to decline their request.

2. Introduction: Nothing has changed since 2002

In the Explanatory Memorandum to the Patterson Bill the Lockhart Review is quoted as saying that, concerning a contentious matter like cloning, ***'total prohibition through the legal system may be justified… where benefits are not yet established, or where there is widespread deeply held community objection.'***

That is precisely the situation with cloning: its alleged 'benefits' have not even been established in animal models, and in humans remains pure hype and speculation; the deeply-held ethical objection was unanimous in our Parliament in 2002 and remains dominant in the public (in valid surveys) since that time.

It is therefore our intention in this submission to review the ethical grounds for this 'deeply held community objection' and also demonstrate that the speculative benefits of cloning are certainly 'not yet established' - and, in comparison to ethical stem cell science, are likely to remain 'irrelevant and impractical'.

It is also necessary to restate that cloning cannot be 'banned' on any grounds other than ethical principle. This debate is not an auction between the promise of cloned embryonic stem cells versus adult stem cells. If it is wrong to create a human embryo solely for research, than it remains wrong even if there were great and unique benefits to be obtained from such an unethical act.

The great consolation in this debate is that, having done the right thing ethically and said 'no' to cloning, we are not denying the public the great benefits of stem cell science. Legislators who oppose cloning are not 'keeping a child in his wheelchair' a single day longer; in fact, arguably, by diverting scarce public funds to the proven and most promising field of ethical stem cell research, and away from cloning, we are accelerating such hoped-for therapies.

So this is not a debate between compassionate 'progressives' and hard-hearted 'conservatives'. Still less an argument between science and religion – as the Swinburne University research into cloning attitudes in Australia confirmed. There was no difference between more and less religious groups in their opposition to cloning embryos for research. Cloning touches on matters even more primal than religion – the most profound relationship in human life, that of the parent and offspring, the most nearly 'sacred' part of our secular lives.

As the great Jewish ethicist, Leon Kass, put it, cloning is about 'nothing less than whether human procreation remains human'.

By saying 'no' to cloning, we are simply supporting science that serves humanity, not science that degrades humanity into mere laboratory material.

In brief, by rejecting this Bill we are supporting stem cell science that is both ethical and effective. Stem cell science we can all live with.

3. Clarity on Cloning - outline

What cloning is

1. Cloning creates a living human embryo, the near-identical twin of the donor. On that essential truth there must be no scientific and political deception.

2. 'An embryo is an embryo', no matter how it is made - whether by natural conception, by IVF, or by cloning. The cloned embryo, even though created 'asexually', is *no different in itself* to one created 'sexually' by 'egg and sperm', and could, like cloned animals, be brought to birth. http://davidvangend.blogspot.com/2006/08/great-lie-at-heart-of-cloning-debate.html

3. No matter whether the embryo is destined for research (so-called 'therapeutic' cloning) or for birth (so-called 'reproductive' cloning), in both cases a living embryo is cloned by the standard technique of SCNT (somatic cell nuclear transfer). Cloning *is* 'SCNT' and 'SCNT' *is* cloning!

Why cloning is wrong

4. Cloning creates a human embryo solely for research, with its destruction intended - and that is wrong. We must not create one life in order to destroy it for the benefit of another life.

5. Cloning requires either the harvesting of hundreds of eggs per clone, commercialising women's ovaries and risking their health, or, as the Review and the Bill propose, using animal eggs to make a human-animal hybrid - and that is wrong.

6. Cloning for research will perfect the technique needed for cloning for live-birth and for fetal organ harvesting. While this will remain illegal in Australia, live-birth cloning is being attempted overseas and cloned-fetus farming is being promoted in major journals. Further abuses of this sort can only occur if we permit and perfect the first steps in cloning.

Why cloning is unnecessary

7. Although cloning must be rejected as ethically wrong, the great consolation is that we do not need it. We will still get the great benefits of stem cell science without cloning.

Clarity on Cloning - discussion

What cloning is

1. Cloning creates a living human embryo

Cloning creates a living human embryo, the near-identical twin of the donor. On that essential truth there must be no scientific and political deception.

Faced with principled resistance by all our Parliaments against creating embryos specifically for research, the cloning lobby has mounted a rhetorical battle to dehumanise the cloned embryo, and therefore make it fair game for such destructive research.

The cloning campaign has audaciously and deceptively decreed that the cloned embryo is not an embryo after all. Therefore it is hardly human. Therefore there is no ethical issue in creating or destroying it.

So in the wake of the apparent Korean cloning success (now of course exposed as a disgraceful fraud) the official spin of the cloning lobby was exemplified in an ABC *PM* radio report, 20th June 2005, that "the announcement from the South Korean scientists is a breakthrough without an ethical dilemma because the researchers did not use a fertilised egg to create the embryonic stem cells. So a human embryo was never actually created."

And more recently, MPs in favour of cloning have repeated the line that the clone is not an 'embryo' because it is not formed by the union of 'egg and sperm'.

This is biological nonsense. An embryo is an embryo no matter how it is made. Cloning is simply one way of making an embryo; uniting egg and sperm is another. Dolly the sheep, formerly Dolly the embryo, did not result from the union of egg and sperm, but was clearly no different to any other embryo in that she was able to be born as a lamb.

In the *Prohibition of Human Cloning Act 2002* the definition of embryo clearly includes those made "by any means other than by the fertilisation of a human egg by human sperm", specifying cloning techniques (SCNT) as one such means.

The campaign to dehumanise the cloned embryo is an international one. The misleading claim that a cloned embryo is not a 'real' embryo was a deliberate tactic of the International Stem Cell Society, formulated at its June 2005 meeting in San Francisco. The journal *Nature* declared in its July 2005 editorial, "Stem-cell biologists should not try

to change the definition of the word embryo" and accused scientists of "playing semantic games in an effort to evade scrutiny":

> Whether taken from a fertility clinic or made through cloning, a blastocyst embryo has the potential to become a fully functional organism. And appearing to deny that fact will not fool die-hard opponents of this research. If anything, it will simply open up scientists to the accusation that they are trying to distance themselves from difficult moral issues by changing the terms of the debate."

At the time of the Korean cloning triumph (later found to be a fraud), ethicist Leon Kass, head of the US President's Council on Bioethics, pleaded for honesty in public discourse about cloning:

> If we are properly to evaluate the ethics of this research and where it might lead, we must call things by their right names and not disguise what is going on with euphemism or misleading nomenclature. The initial product of the (Korean) cloning technique is without doubt a living cloned human embryo, the functional equivalent of a fertilised egg..." New York Times, May 29 2005.

Truthful nomenclature was used by former President Clinton's National Bioethics Advisory Commission. His Commission, in its 1997 report *Cloning Human Beings*, explicitly stated:

> The Commission began its discussions fully recognizing that any effort in humans to transfer a somatic cell nucleus into an enucleated egg involves the creation of an embryo, with the apparent potential to be implanted in utero and developed to term.

Or for an authoritative statement from Europe rather than the US, on September 7, 2000, the European Parliament adopted a resolution on human cloning. The Parliament's press release defined and commented on "therapeutic cloning":

> . . . 'Therapeutic cloning,' which involves the creation of human embryos purely for research purposes, poses an ethical dilemma and crosses a boundary in research norms.

Even a few years ago scientists who in fact support "therapeutic cloning" were still being honest in their use of language, prior to the current strategy of obfuscation. Cloning advocates Arthur Caplan of the University of Pennsylvania, Lee Silver of Princeton University, Ronald Green of Dartmouth University, and Michael West, Robert Lanza, and Jose Cibelli of Advanced Cell Technology confirmed in the December 27, 2000 issue of the *Journal of the American Medical Association* that a human embryo is created and destroyed through "therapeutic cloning":

> . . . because therapeutic cloning requires the creation and disaggregation ex utero of blastocyst stage embryos, this technique raises complex ethical questions.

Let there be no deception: an embryo is an embryo no matter how one makes it – naturally, by IVF, cloning, or parthenogenesis. They all have a life of their own, and cloning involves creating that life with its research destruction in mind.

2. The cloned embryo, like an 'egg & sperm' embryo, could be brought to birth

'An embryo is an embryo', no matter how it is made whether by natural conception, by IVF, or by cloning. The cloned embryo, even though created 'asexually', is no different in itself to one created 'sexually' by 'egg and sperm', and could, like cloned animals, be brought to birth.
http://davidvangend.blogspot.com/2006/08/great-lie-at-heart-of-cloning-debate.html

In its final recommendations the Lockhart Committee acknowledged the biological fact that a clone is of course a human embryo, and noted that the cloned embryo could, 'given the right environment' be born:

> **The Committee agreed that human embryo clones are human embryos** and that, given the right environment for development, could develop into a human being. Furthermore, if such an embryo were implanted into the body of a woman to achieve a pregnancy, this entity would certainly have the same status as any other human embryo, and were this pregnancy to result in a live birth, that child would enjoy the same rights and protection as any other child. (Part C Exec Summary, p.170).

It is a central tactic of the cloning lobby to obscure the truth that a living human embryo is created by cloning, as with these other techniques – a twin embryo of the donor that could be born as a baby, given the right conditions, just as Dolly the cloned sheep embryo was born as a lamb.

It is because the cloned embryo is, like any other embryo, a living human organism oriented towards further development, that the Patterson Bill makes it a crime to implant the cloned embryo in the body of a woman.

To implant a cloned embryo in the body of a woman would allow the embryo to develop further as a fetus and a baby. So the Patterson Bill would make it a crime to allow an embryo to develop into a baby!

The cloned embryo, having been wrongfully created out of any human context, must, on the order of the State, be wrongfully killed! That is immoral and, indeed, a totalitarian abuse of State power.

This is the first ever proposal for compulsory State-ordered killing of innocent members of the human species. The proposal is barbaric, and not worthy of the support of any decent man or woman in Parliament.

3. <u>All</u> cloning is 'reproductive; <u>all</u> cloning is 'SCNT'

No matter whether the embryo is destined for research (so-called 'therapeutic' cloning) or for birth (so-called 'reproductive' cloning), in both cases a living embryo is cloned by the standard technique of SCNT (somatic cell nuclear transfer). Cloning is 'SCNT' and 'SCNT' is cloning!

There are two misleading distinctions made in the debate surrounding this Bill: first the distinction between 'reproductive' and 'therapeutic' cloning, second, the implied distinction between 'cloning' and 'SCNT'.

'Reproductive' and 'therapeutic'

On the first, the Patterson Bill is misleading in its very title: the "Prohibition of Reproductive Cloning". All cloning is 'reproductive', since it reproduces a distinct member of the species *homo sapiens*, alive and growing. Each of us is 'reproduced' at the time of formation of our self-contained and self-directing 'body' – i.e. at the time of formation of the zygote, day 1. This formation can occur by penetrating the egg with a sperm or by penetrating the enucleated egg with a somatic cell nucleus. The resultant entity is a self-contained, self-directed living human embryo. Reproduction has occurred, and now development from our one-cell body to our multi-cell body is continuous until natural death.

The only question is whether, having been reproduced, the embryo is allowed to develop as other embryos, or is killed by order of the State.

Therefore the title of the Bill shows ignorance of the science of cloning – to clone is to 'reproduce' an embryonic human, and to prohibit 'reproductive' cloning is simply to prohibit all cloning. The Bill is muddled even in its title – but it is a muddle which, like all the shameful linguistic deception surrounding this debate, is designed to achieve one thing only: the dehumanization of the embryo created by cloning, in order to justify the deliberate creation of such an embryo as mere laboratory material.

'SCNT' and 'cloning'

On the second widespread and misleading distinction, between SCNT and cloning, we can however commend both the Review and the Bill for making clear that SCNT (somatic cell nuclear transfer) is in fact merely the technical term for cloning.

So the <u>Issues Paper</u> with which the Lockhart Review began, acknowledges that SCNT is merely the method of cloning:

> …a human embryo clone could be created by somatic cell nuclear transfer (SCNT) a practice prohibited in Australia under the Prohibition of Human Cloning Act 2002.

We hope that the clarity of the Review and the Bill will help put to rest the nonsense that is confusing many of our legislators. It is wrong to claim, as influential MPs like Industry Minister Ian Macfarlane have, that 'this process is not cloning, it is just SCNT' – since the acronym 'SCNT' (for 'somatic cell nuclear transfer') is simply the technical description of cloning which was used in the creation of Dolly the sheep. SCNT *is* cloning. They are two 'words' for the same process.

Regrettably, the attempt to obscure the meaning of 'cloning' and put legislators off the scent was a deliberate political tactic of the same International Society for Stem Cell Research (ISSCR) that gave us the central lie of the cloning debate (that the cloned embryo is not an embryo). Even more regrettably, the current Acting Chair of Lockhart, Loane Skene, is an ethical advisor to that Society, and bound by that position to promote their strategy in favour of 'therapeutic' cloning.[i]

At its 2004 meeting, which is reported at their website,[ii] the ISSCR states:

> **New nomenclature:** " Nuclear transfer" replaces "therapeutic cloning," in an effort to move away from the negative connotations of "cloning." Please use these new terms in your manuscripts and communications with the lay public and press to move toward generalized usage of those words.

Their attempt to evade the issue by avoiding the word 'cloning' was reported in the scientific journal *Nature* in July last year: [iii]

> Scientists realized that the word 'cloning' was generating public concern. So they decided to adopt a more technical term (SCNT) less likely to stir up strong emotions.

Leading ethicist Leon Kass (former head of the US President's Council on Bioethics) commented on this tactic:

> Although as a scientific matter 'somatic cell nuclear transfer' (SCNT) may accurately describe the technique that is used to produce the embryonic clone, these terms fail to convey the nature of the deed itself, and they hide its human significance.[iv]

It is wrong and evasive to hide the human significance of the act of cloning by tricky word games, and we appreciate the clarity of the Review and the Bill. Let our MPs and Senators reach their conclusions based on truthful scientific terminology, not deception and muddle.

Why cloning is wrong

4. Creating an embryo solely for research is wrong

Cloning creates a human embryo solely for research, with its destruction intended - and that is wrong. We must not create one life in order to destroy it for the benefit of another life.

Cloning was excluded by the ethical line drawn by Parliament in 2002: approval to use the "spare" IVF embryos, because they were "going to die anyway", but prohibition on creating embryos specifically for research.

The Prime Minister drew this ethical line in his second reading speech:

> I could not find a sufficiently compelling moral difference between allowing embryos to succumb in this way and destroying them through research that might advance lifesaving and life-enhancing therapies. That is why, in the end, I came out in favour of allowing research involving excess IVF embryos to go ahead. I believe strongly, however, that…human embryos should not be created for any purpose other than IVF treatment.

On this principle a ban on creating embryonic humans purely for research, whether by IVF or cloning, was passed *without a single dissenting voice* by Parliaments Federal and State.

The statements of this principle were eloquent and forceful – even by those who supported the use of 'spare' IVF embryos. For example, on the Coalition side:

> **Senator Kay Patterson (Liberal)**
> I believe strongly that it is wrong to create human embryos solely for research. It is not morally permissible to develop an embryo with the intent of truncating it at an early stage for the benefit of another human being.
>
> **Sharman Stone (Liberal – Murray)**
> There is no place in the world, much less Australia, for commercial exploitation of embryos for research or their deliberate creation for research.
>
> **Bronwyn Bishop (Liberal – Mackellar)**
> All are in agreement that cloning should be outlawed, and that is what this bill does….I conclude my contribution to this debate by saying that it is a very difficult area, that the idea that any legislation should permit the production of embryos for the purpose of harvesting those stem cells to me would be an anathema.

Warren Entsch (Liberal – Leichhardt)
… let me state that I totally and fully support the ban on human cloning. I am totally opposed to human cloning in any shape or form. I think it is absolutely abhorrent and I would never support it.

Likewise on the Labor side, statements that cloning is wrong and to be banned were no less forthright:

Kim Beazley, (Labor - Leader of the Opposition)
We have made moral judgments against human cloning. There is no doubt the scientists can take us down that road, should they be permitted by the law of the land. There is no doubt too that, were they to take us down that road, there might be some interesting things found out as that process was undertaken by them. Nevertheless, we say no.

Simon Crean (Labor – Hotham; then Leader of the Opposition)
Our policy does not support human cloning. It will only support research on embryos created for IVF purposes that would otherwise be destroyed.

Jenny Macklin (Labor – Jagajaga)
I imagine everybody will support the ban on the creation of embryos specifically for research. It is important that the parliament is not silent on these issues.

Jennie George (Labor – Throsby)
I am happy that it provides restrictions and regulation to ensure that embryos will not be commodified now or in the future, either by those who might create excess embryos for the sole purpose of providing material for research for commercial gain or by those who might trade on human misery by promising to provide childless couples with an opportunity to be parents through cloning technologies. This bill rightly bans cloning embryos for research purposes and also rightly prevents what I find to be totally repugnant, the cloning of human beings.

Anthony Albanese (Labor - Grayndler)
The Labor Party are allowing a conscience vote on this bill, but we do have a party position—and it is a position I support. We do not support human cloning; we only support research on embryos created for IVF purposes that would otherwise be destroyed.

Martin Ferguson (Labor – Batman)
The farming of embryos will also be banned. Embryos will not be created for the specific purpose of scientific research…

One must ask: if it was so clearly ‘wrong’ to create a human embryo solely for research in 2002, how can it be ‘right’ in 2002?

The prohibition of cloning in the existing 2002 Act is entirely just and necessary, and must not be overturned by the Patterson Bill. Essential ethical principle does not change from year to year, from review to review: it is wrong now as it was in 2002 to permit the creation of human embryos, as the current Act puts it, "for any purpose apart from attempting to achieve a pregnancy".

5. Commercialising women's ovaries or hybridizing with animals is wrong:

Cloning requires either the harvesting of hundreds of eggs per clone, commercialising women's ovaries and risking their health, or using animal eggs to make a human-animal hybrid - and that is wrong.

There is no happy middle way for the supporter of cloning. Either we harvest from women the hundreds, or perhaps thousands, of eggs needed for each cloning experiment, or we harvest them from pigs or rabbits.

Thousands, in the case of Prof Hwang Woo-Suk, South Korea's 'Supreme Scientist', who coerced his junior researchers into contributing to the two thousand eggs he needed to create the eleven cloned embryos that made him famous. Until it was found in December last year – the very week of the tabling of the Lockhart report – that he was a fraud, his science lies, and the two thousand plus eggs had made not a single clone.

Perhaps only dozens, in the case of the Newcastle team who, around the same time as Hwang, claimed to have cloned a single embryo from three dozen eggs from eleven women. Perhaps… except their research was not published in a peer-reviewed journal, so in scientific terms it is not yet authenticated, and the team has had no further 'success'.

Chief Scientist Jim Peacock came out recently against animal-human hybrids on the grounds that the mixing of DNA in the resultant embryo would make it a poor model for research into human disease. But in saying this, he is a lone voice against the consensus of IVF scientists, the Lockhart committee, and the Patterson Bill – which say we must use animal eggs, since there is no possibility of obtaining sufficient eggs from women.

The Lockhart Review of our cloning laws, p.170, recommends animal-human hybrid clones: "In order to reduce the need for human oocytes, transfer of human somatic cell nuclei into animal oocytes should be allowed". And Senator Patterson wants to make Lockhart's animal-human hybrid fantasies law.

Likewise cloning advocate Prof Alan Trounson suggested using rabbit eggs to clone human embryos – a process which does indeed leave rabbit DNA in the embryo and makes the clone a human-animal hybrid. Trounson said last year,[v] "Since there are plenty of rabbit eggs around, if we could make that work it would remove the concern about

accessing human eggs in any numbers".

We are told these animal eggs contain only "traces of mitochondrial DNA". Yet the whole mitochondrial DNA of the rabbit or pig is present entire and functioning, and is incorporated into the animal-human hybrid embryo – in sufficient amounts, in animal cloning studies, to have the resultant 'tailor-made' stem cells suffer immune rejection as 'foreign'.

There remain two options, then, for this wonderful new science of cloning: either commercialise women's ovaries, putting at risk especially poorer women who will take money for their eggs – or settle for animal-human hybrid clones.

And all this for a science which is as redundant as it is wrong: a useless tinkering with cloned embryos in order to get 'patient specific stem cells' that we can already get from our own adult tissues!

Cloning violates our humanity, not only in creating embryos who have no identifiable human mother – just an emptied out egg nearly devoid of her genetic identity – but in proposing the further dehumanisation of an animal egg where a mother's egg should be.

5. The slippery slope to live-birth cloning and fetus farming:

Cloning for research will perfect the technique needed for cloning for live-birth and for fetal organ harvesting. While this will remain illegal in Australia , live-birth cloning is being attempted overseas and cloned-fetus farming is being promoted in major journals. Further abuses of this sort can only occur if we permit and perfect the first steps in cloning.

It is not responsible to dismiss 'slippery slope' arguments as 'scare-mongering'. The phenomenon of stepwise progression towards a previously unthinkable state of affairs is a commonplace in human history. So Senator Patterson is indignant at any thought that her Bill is preparing the way for actions she opposes – like live-birth cloning. Yet we must face reality: there are already scientists and ethicists defending 'live-birth' cloning, and one scientist in the US who has published the claim to have a cloned embryo in the fridge waiting for a surrogate womb.

Worse than that, there are also scientists and ethicists defending the need to grow cloned embryos to the fetal stage where we can butcher them for organs for transplant. Given that Senator Patterson's Bill allows for the harvesting of 'precursor' cells from aborted fetuses in order to create embryos who will themselves be destroyed in research, is her proposal really much less macabre than the proposal of fetus farming?

If we think these further steps are wrong, we are reckless if we make them possible by perfecting the essential first steps.

On the question of 'live-birth' cloning (Sen Patterson's misnamed 'reproductive' cloning): no less an authority than the American Society for Reproductive Medicine has pointed to the obvious logic of 'therapeutic' techniques facilitating later 'reproductive' techniques:

> If undertaken, the development of SCNT for such therapeutic purposes, in which embryos are not transferred for pregnancy, is likely to produce knowledge that could be used to achieve reproductive SCNT.[vi]

On the more disturbing question of 'fetal farming': no less a local authority than ethicist Professor Julian Savulescu has argued that we must not only clone, but grow the clones until they are big enough to kill and harvest organs from:

> The most publicly justifiable application of human cloning, if there is one at all, is to provide self-compatible cells or tissues for medical use, especially transplantation. Some have argued that this raises no new ethical issues above those raised by any form of embryo experimentation. I argue that this research is less morally problematic than other embryo research. Indeed, it is not merely morally permissible but morally required that we employ cloning to produce embryos or fetuses for the sake of providing cells, tissues or even organs for therapy, followed by abortion of the embryo or fetus.
>
> **Should we clone human beings? Cloning as a source of tissue for transplantation.** Julian Savulescu. *Journal of Medical Ethics* 25.2 (April 1999): p87.

And Dr Stuart Newman, professor of cell biology and anatomy, New York Medical College, predicted this outcome before the US Senate Subcommittee on Health, 3/5/2002

> Cloning embryos for producing embryo stem cells will, by failing to deliver on its promises, inevitably lead to calls to extend the life span of clonal embryos so as to permit harvesting developmentally more advanced cells and tissue for research and potential therapies… And once stem cell harvesting from two-month clonal embryos is in place, who could resist the pleas to extend the time frame so that liver and bone marrow could be obtained from six-month clonal fetuses… This is my prediction… frustration over lack of progress in producing safe and effective therapeutics from embryo **stem cells** will lead to calls to permit harvesting of embryo germ cells from two to three month clonal embryos…

And the practical experiments of cloned-fetus farming are being done in animal models – not out of tender concern for the animals' health and quality of life, but as a model for human cloned-fetus farming.

So in July last year the director of Advanced Cell Technology, Robert Lanza, successfully cloned cow fetuses and aborted them to obtain differentiated liver tissue.[vii] In a press release, Lanza hailed this technology, expressing hope that it would be used "in the future to treat patients with diverse diseases".[viii]
He means human patients, therefore needing human cloned fetuses to be created and killed for their organs. This is the future, if we in Australia support the first steps in human cloning. This generation of legislators is responsible for lifting that lid on Pandora 's Box, allowing noxious and unwanted things to come out – or keeping it closed.

Why cloning is unnecessary

7. Ethical stem cell science is doing the job

Although cloning must be rejected as ethically wrong, the great consolation is that we do not need it. Ethical sources of stem cells will get us the great benefits of stem cell science without having to violate our humanity through cloning.

The two important goals of stem cell science are (1) to use 'patient-specific' stem cells as direct cell therapy to repair damaged tissue, (2) to use 'disease-specific' stem cells as tools for exploring a disease process and testing drugs against that disease.

In both of these goals, cloning for embryonic stem cells (ESCs) is unnecessary, since adult stem cells (ASCs) are doing the job.

Goal (1) Direct 'stem-cell therapy' for treatment:

Human cloning is unnecessary for direct 'cell therapies', because adult stem cells are already providing the required 'patient-specific' stem cells for treatment.

> Contrary to popular misconception, embryonic stem cells have never have been used in any human condition, while adult stem cells are already safely used in over 70 human conditions.[ix]
>
> The tumour tendency of ESCs and genetic damage accumulated in the cloning process makes cloned ESCs dangerous in animals and unthinkable for direct use in humans. By contrast, ASCs are proven to be safe and effective in humans.
>
> Therefore, ccontrary to the hype of lobbyists, cloning is *not* proposed by serious scientists as a means to obtain embryonic stem cells (ESCs) for direct treatment of diseases like diabetes, Parkinson's and spinal injury. That is being left to adult stem cells (ASCs).
>
> So Professor Bob Williamson of the Australian Academy of Science, a supporter of research cloning, stated in January this year: "Nuclear transfer ('therapeutic cloning') is *not of importance to give cells to treat patients*; these are far more likely to come from so-called 'adult stem cells'." [x]
>
> Also Professor Alan Trounson of the Australian Stem Cell Centre stated in May 2005: "I don't call it therapeutic cloning because *it's not about cells for therapy.* This is about cells that give us an opportunity to discover what causes a disease and whether we can interfere with that."

And the Chief Executive of the Australian Stem Cell Centre, Stephen Livesey (Fin Review 10/9/06): "The reason why scientists want to create a nuclear transfer embryo is for the tiny mass of inner cells that are stem cells (which) could then provide a safe and sustainable way of testing, in the laboratory, new drugs and theories on cells that carry the human disease trait."

Let's get the science straight: stem cells from cloning are NOT proposed for direct 'repair kit' treatments, except by cynical campaigners. Cloning is only seriously proposed as providing 'research' tools - a way to obtain "disease-specific" stem cells for drug testing and genetic research of disease.

Having said that...

Goal (2) 'disease specific' stem cells for research:

Human cloning is unnecessary *even for research purposes*, because adult stem cells are already providing the required 'disease-specific' stem cells for research.

Discoveries by teams like Prof Alan Mackay-Sim's at Griffith University show that adult stem cells from the back of your nose are already being used in exactly the same way as we hear proposed for ESCs from cloned embryos. [xi]

Cloning for research remains entirely speculative - since nobody in the world has ever made even a single ESC from a cloned human embryo – while Griffith is already using 'disease-specific' ASC lines from over 40 patients for research into Parkinson's, motor neurone disease, epilepsy, schizophrenia etc.

Not only is it quick and simple to sample some cells from your nose (or a dozen other parts of the body) while cloning remains only an unproven fantasy, but ASCs are superior for research, since they are a true genetic match of the diseased patient. ESCs from the cloned embryo are damaged - in animal models, up to 20% of the genetic data is corrupted by the process of cloning - and the cloned embryo incorporates foreign DNA from the donor egg. Second rate research material.

And far beyond anything cloned embryonic stem cells could do, these ASCs are being used successfully at Griffith in direct cell therapies such as treating Parkinson's in rats.

Cloning lacks basic 'proof of principle' in animals, while adult stem cell advances even in Australia are proving safe and effective in humans, both for research and therapies.

Why pursue the degrading fantasy of cloning proposed in the Patterson Bill, when a superior stem-cell research tool is accessible, entirely ethically, right there under your nose? Or in your fat or blood or skin?

8. The true shape of stem cell science:

An admission of hype 'to get liberal legislative approval'

The only explanation for the support among MPs and the public for cloning is the ongoing denigration of ethical stem cell research and the hype and distortion that still surrounds embryonic stem cell science. That is not a sound basis for public policy.

In an astonishing admission of the deliberate hype used by the cloning lobby to bring pressure to bear on legislators, the President of the British Academy for the Advancement of Science, Lord Robert Winston, said last year: "the desire to source some stem cells from embryos - an ethically controversial area - probably led a number of the field's proponents to hype outcomes just to get liberal legislative approval." That can stand, to our shame, as an epitaph to Australia's debate, 2002.

Having been fooled once, it would be an embarrassment for legislators to be taken in a second time by the unfounded speculation of scientists – as reproduced faithfully in the Lockhart Review.

Yet the systematic distortion and hype is still present in the 2006 debate.

Examples of current distortion of the science:

'Adult stem cells are hard to get hold of'

By way of typical example, we often still read that adult stem cells are second rate because they are difficult to obtain (entirely false, as a number of my patients, whose stem cells have been collected in minutes and multiplied into thousands by the Griffith team, can testify). By contrast to the immediate accessibility of genetically matched ASCs, reflect on two facts concerning ESCs:

a. the fact that nobody anywhere has ever produced a single embryonic stem cell from a cloned embryo, despite many attempts: it is all speculation
b. the fact that nobody anywhere has ever used a single ESC from an IVF embryo for human therapies, because they are intrinsically unusable – given their tumour tendency and genetic instability and other problems

That is the true comparison of 'ease of access' and usefulness of ASCs versus ESCs. Please consider the Griffith University summary in Appendix 2.

'ASCs are hard to turn into other tissues'

We read that ASCs 'cannot turn into many different cell types' like ESCs can. Yet adult stem cells have been shown beyond any doubt to be fully 'pluripotent' – that is, able to turn into many other cell types, just like embryonic stem cells, only in a more controlled and useful fashion. I attach documentation of published scientific articles[xii] showing many sources of pluripotent adult stem cells.

On this point, pro-cloning MP Mal Washer mistakenly tells Senators and MPs that embryonic stem cells are superior because they are 'totipotent', i.e. are able to become all possible tissues of the body. He misunderstands the science.

So after a recent Parliamentary briefing Prof Alan Mackay-Sim confirmed to ABC Radio [xiii]his view that 'adult stem cells can do everything that therapeutic cloning potentially could do', and Mal Washer played the 'totipotency' trump card:

> MAL WASHER: What Alan said, and I think this is an important thing, is that adult stem cells do not have totipotency. They have some flexibility and that is fabulous and maybe they'll get more flexibility with more research and time. But nothing can replace that total, every cell line in your body creation from an embryonic stem cell and no-one has said anything contrary to that there.

But that is all bluff: an auctioneer's attempt to persuade the audience of the superior qualities of a dodgy product. Totipotency is in fact the curse of embryonic stem cells, not their crowning glory.

Dr Washer should know that 'totipotency' – the ability to turn into 'all' tissues of the human body – is the central insurmountable problem with embryonic stem cells (ESCs). That is why these cells turn into 'teratomas' - tumours with tissue from every layer of the human body – because they are cursed with 'totipotency'. Nobody will contradict his claims of totipotency for ESCs – but who wants totipotency anyway?

After all, the job description of an embryonic stem cell is to turn into all cell types – and in forming tumours it is only doing its job. By contrast, the job description of an adult stem cell is to be the repair kit for a certain tissue – and to turn into other tissues in only a very controlled manner (as Mackay Sim's team has so beautifully demonstrated in their published work).[xiv]

In considering this point, Senators can ask themselves: for the treatment of disease, which cell-type would you want in your body? One that is exploding uncontrollably into tumours, or one that is calm and controllable in turning into the desired cell type?

For instance, contrast the trial of ESCs in repairing the cartilage of mice – where a tumour was formed in every single joint injected - to the ongoing human trials of adult stem cells for the repair of cartilage[xv]. No tumours! Or the Bjorklund study using ESCs to treat Parkinson's in rats, where one in five of the rats died of brain tumours from the ESCs.[xvi] Compare that to Mackay-Sim's Griffith colleagues who have treated Parkinsons in rats using adult stem cells, without a single tumour, and with sufficient success to justify primate trials.[xvii]

Happy patients versus sad rodents. That about sums up adult versus embryonic stem cell science.

Yet Washer has the chutzpah to declare that this curse of 'totipotency' is in fact what gives cloning for embryonic stem cells the edge over adult stem cells!

A comparison of ASC v ESC in published studies

A third example of typical distortion and confusion: the impression is given that embryonic stem cells have had great results in Parkinson's, diabetes, spinal cord injury, heart disease, and hold great promise in human therapy.

But as noted above in the quotes by Williamson and Trounson, no serious scientist expects ESCs to be used as direct cell therapy in humans; and the honest ones admitted this to be the case back during the hysteria of 2002. Only the lobbyists continue to peddle this falsehood.

ESCs can only do tricks in rats, never treatments in humans, for the reasons noted above. Therefore ESC studies reported in the media are only ever in animals – and show second-rate results compared to ASC studies in animals. And of course, only ASCs have studies in humans.

We invite Senators to judge for themselves. Here is a comparison of scientific literature of adult versus embryonic stem cells in the above key conditions:

Diabetes Treatments [xviii]
Heart Treatments [xix]
Parkinson's Treatments [xx]
Spinal Cord Injury Treatments [xxi]

9. Salt in the wound of Alzheimer's

Finally, as the epitome of the deceptiveness of the cloning lobby, a word about Alzheimer's.

It is a sign of how low the cloning lobby will go that they resort to arguments that are not only false, but cruel. And it is time to call a halt to their despicable manipulation of Alzheimer's sufferers and their families.

I have patients devastated with Alzheimer's disease, families in prolonged grief for the loss of their mother to this degrading affliction, and the last thing anyone should do is raise false hope of treatment in such people.

Let it be clearly stated once more: Alzheimer's disease is not, and never could be, a

candidate for stem cell therapy - not even using the safe therapy of adult stem cells, let alone using inherently dangerous embryonic stem cells.

Professor Colin Masters, Australia's leading authority on degenerative diseases of the brain, dismissed as "beyond our imagination" any proposal for stem cell therapy in Alzheimer's. Adelaide embryo researcher, Professor Peter Rathjen, put it more bluntly in the Australian newspaper as "bloody nonsense". No serious medical expert, here or overseas, will dispute that judgment.

But for the cloning lobby it does not matter that raising hopes of embryonic stem cell therapies for Alzheimer's is knowingly deceitful and cruel, what matters is that it works with the voters. This effective formula of having scientists lie about diseases like Alzheimer's and having patient advocacy groups believe those lies so they beat down the doors of politicians - that worked for embryo experimentation in 2002 and maybe it will work again for cloning in 2006.

So again in August Alzheimer's was central to the media distortions of public opinion on cloning. We have the sad spectacle of Hazel Hawke on the ABC 7.30 Report, on August 7, 2006, and her daughter pleading for cloning to be allowed in order to treat her mother's Alzheimer's.[xxii] What charlatans of science have been deceiving the Hawke family, and why are they not exposed and shamed for it? We see, on the same day, the editorial of The Australian wallowing in misguided compassion about cloning providing "hope of cures for ailments from Alzheimer's disease to diabetes". Utter nonsense, and hurtful nonsense.

Why this organised lying, which at a public level corrupts public policy on stem cell science and at a private level lifts up families of disease sufferers only to dump them back in the dirt? We know who the repeat offenders are - certain politicians (Premier Bracks being the worst), a couple of journalists and scientists - and they may choose which category, ignorant or deceitful, they prefer.

The Alzheimer's deceit has been central to the campaign overseas also. During the public hysteria surrounding the death of US President Reagan in 2004 from Alzheimer's, the Washington Post pointed to the "Reagan-inspired tidal wave of enthusiasm" for embryonic stem cell research.

But the report correctly noted that Alzheimer's was not the sort of disease open to stem cell therapy, and that science was being distorted amid the frenzied hype: "A distortion that some admit is not being aggressively corrected by scientists." Then came an astounding comment by a stem cell researcher at the National Institute of Neurological Disorders and Stroke: "To start with, people need a fairy tale," he said. "Maybe that's unfair, but they need a story line that's relatively simple to understand." [xxiii]

Fairy tales. Fairyland. Nonsense. As the Deputy Prime Minister in 2002, John Anderson, lamented: "If we can't believe leading scientists to give us the real truth, how are we as a society to form the right judgments?"

But that is to misunderstand the motivation of elite scientists and their relationship to ignorant society. As I learnt from discussion with American stem cell scientists at Johns Hopkins University in May, what really matters is that society - especially social conservatives - must not be allowed to limit scientific research. As one cloning advocate put it to me: “If you let them limit us on cloning, where will it stop?” What really matters is that we, the scientists, are not told by you, the great ignorant (and probably conservative) unwashed, what we can and cannot research.

Voters will continue to be misled with false science and fairy tales, if that is what is needed to ensure, as Lord Winston put it (above) “liberal legislative approval” on cloning, this latest frontier. Scientists will do this partly to ensure that nobody, not even the Parliament, tells them what they can and cannot do, and partly because it doesn’t often rain dollars like this for researchers.

Too bad that scientific integrity can be so easily bought off. Too bad that scarce research money will be diverted away from effective and ethical adult stem cell science. And too bad that families of patients afflicted by Alzheimer’s, who have already suffered enough, will continue to be exploited as useful fools by the cloning lobby.

The final words should go to two of Australia’s leading experts on the true state of stem cell science:

> Prof Alan Mackay-Sim of the National Adult Stem-Cell Centre, who told the Lockhart Committee: **“It is probable that such (adult) stem cell lines as these will render therapeutic cloning irrelevant and impractical**”. [xxiv]
>
> Emeritus Prof TJ Martin FRS, Melbourne University, who wrote recently in the Age: **“There are no cell-based therapies for any disease that would warrant the preparation of human embryonic stem cells by SCNT (‘therapeutic cloning’).”** [xxv]

In summary, the pseudo-science of human cloning is unethical but also unnecessary.

Therefore we ask our legislators to reject the Patterson Bill in favour of stem cell science that is both ethical and effective.

4. Why the Lockhart Review stands discredited

The theory that the Lockhart Committee was ethically biased, and that it selectively ignored evidence unfavourable to its preferred outcome, does fit the available facts.

First, the evidence of prejudiced ethical views.

Not only is the acting Chair of the Lockhart Committee, Loane Skene, on the record as an apologist for cloning from at least 2000, but there is similar evidence on the pre-existing pro-cloning views of two of the other five Lockhart members.

Loane Skene is ethical advisor to the International Society for Stem Cell Research (ISSCR), a leading pro-cloning lobby group.[xxvi] In that position she is, quote, "responsible for representing the Society's ethical viewpoint" – which is a viewpoint advocating 'therapeutic' cloning.

Nobody disputes that Skene fulfils her duty to the ISSCR very well. The obvious question is whether there is a conflict of duties – on the one hand to lobby for cloning on behalf of the ISSCR, and on the other to be a 'disinterested' and open-minded member of a statutory committee surveying public attitudes on cloning.

The ISSCR has been prominent in lobbying for cloning both at the UN level[xxvii] and in the current Australian debate – where Prof Paul Simmons, currently President of the ISSCR, is one of the leading Australian advocates for cloning. He has had warm praise for Skene's Committee, and along with fellow Committee member, Prof Alan Trounson, has written to all MPs urging support for the report of their colleague, Loane Skene.

Skene was already on the record supporting so-called 'therapeutic' cloning as far back as 2000 – yet in August she told the Age newspaper that she entered the Lockhart Committee with no position on the matter. This is puzzling.

> Loane Skene says she didn't have a position on therapeutic cloning when she joined the committee, though as a long-time participant in debates on the legalities and ethics of assisted reproduction, she was in favour of the pursuit of technologies that improve fertility. She says her views evolved through six months of reading the voluminous data and, more importantly, listening to submissions. 'I certainly changed my view. I can't speak for the others.'
> The Age, August 19, 2006 [xxviii]

But Skene certainly did have a position on therapeutic cloning on the record as far back as 2000. She addressed the Federal Parliamentary Inquiry into the Scientific, Ethical and Regulatory Aspects of Human Cloning in March 2000, and argued that there was no ethical objection to creating embryos for research by 'therapeutic' cloning: "Even if one regards reproductive cloning as contravening human dignity, surely the same is not true of therapeutic cloning."[xxix]

Indeed, in her clearly stated view, therapeutic cloning is justified by the possibility of gains for medical research. “One can best serve the ‘dignity of a person by trying to save the person’s life and health. I do not believe that any ‘dignity’ interest of the embryo outweighs the interests of a dying or diseased person”.

That, I submit, is not the statement of a person who “didn’t have a position on therapeutic cloning when she joined the (Lockhart) committee”.

It is, instead, a well presented position at one ethical pole of the current debate: that it is acceptable – even imperative - to create and destroy one human life (that of the cloned embryo) for the benefit of another life (that of the patient).

It is also almost verbatim the form of words and ethical argument quoted from the Lockhart Review in Senator Patterson’s Explanatory Memorandum. So her long-established ethical views in favour of cloning have been carried through intact from the 2000 Parliamentary hearings to the current Bill.

The acting Chair of the Lockhart Committee is, on the available evidence, a committed advocate of cloning who argued the case before a Parliamentary committee in 2000, and advises the world’s leading cloning lobby group, the ISSCR.

What then, are MPs and Senators to make of Skene’s claims to have had ‘no position prior to joining the committee’, indeed that her views only ‘evolved over 6 months’ under the kind tutelage of those who made submissions and gave testimony?

These seem to be claims to an appearance of the ‘open-mindedness’ befitting a ‘disinterested’ committee advising on a contentious subject. They are claims that require a degree of skepticism.

As to evidence of ethical bias in the other members of the Lockhart committee:

Associate Professor Ian Kerridge (June 2001)[xxx]: "Therapeutic cloning has massive potential. Animal work has shown promising insights into how it can be used to repair tissues that can't normally repair themselves or for which there is a shortage. There are strong moral imperatives to do stem cell and cloning research.”

Professor Peter Schofield (9 October 2001)[xxxi] “Parts 4 and 5 of the [Human Reproductive Cloning and the Trans-Species Fertilisation] Bill [NSW] will allow research on human stem cells, including embryonic stem cells and their use in human therapeutic cloning. This is to be commended as it provides both a regulatory basis by which exciting and significant new developments in medical research can be progressed while providing clarity and simplicity about lines of investigation that will not be permitted because of overwhelming ethical concerns.”

So to the observer, there is substance to the theory that this was an ethically prejudiced elite, appointed by largely pro-cloning Premiers, vetted by pro-cloning Minister Julie Bishop, a committee whose recommendations could be safely known in advance, and which continues to act as a dedicated lobby group long after it officially (19/12/05) ceased to exist.

Otherwise how can one account for the academically scurrilous behaviour of the committee regarding its two 'terms of reference': to assess any change in the science of cloning since 2002, and to assess any change in community attitudes to cloning since 2002?

Second, the selective ignoring of unwanted evidence

1. On the first term of reference: changes in science

The report commissioned in June from **mpconsulting** confirms what all informed and moderate people have said, which is that nothing has really changed since the unanimous vote against cloning in 2002 - so why reopen the issue?

So in response to Lockhart Recommendation 23 that: "Human somatic cell nuclear transfer should be permitted, under licence, to create and use human embryo clones for research, training and clinical application…" **mpconsulting** comments:

> Since the Committee published its Report there have been some further developments which have discredited the work of the South Korean researchers. On the basis of advice from the NHMRC *it would not appear that there have been any other scientific developments relevant to the question of whether the ban on the creation of embryos by SCNT should be lifted*. (emphasis mine)

No scientific developments relevant to the ban on cloning!

During the Committee hearings, it was believed that there had been a significant scientific development in cloning - the Korean experiment under Prof Hwang Woo-Suk.

So, for example, the Australian Stem Cell Centre submission to Lockhart[xxxii] declared with great enthusiasm that doubts about the possibility of human cloning were over since Hwang: "**this technique is no longer theoretical; it has been proven, optimised, and is being performed in laboratories throughout the world**."

The ASCC submission paid careful attention to Lockhart's need to find, under their term of reference, that there had been significant advances in the science of human cloning. Here, with Hwang, was the news the cloning lobby and the Lockhart Committee needed to hear:

> *Some notable advances* would include both the initial proof-of-concept of human SCNT and a subsequent greatly enhanced efficiency of SCNT by Professor Woo Suk Hwang from Korea. At the time of the previous legislative debate, human

> SCNT had not been achieved and there was some controversy in the field as to whether it was in fact possible.

Some 'advance'! Only a new low in scientific dishonesty and disgrace. The one allegedly significant scientific advance that Lockhart used to justify overturning our ban turned out, within days of tabling the Lockhart report (tabled Dec 19th 2005), to be a monumental fraud.[xxxiii]

The serious question is why, realising that their recommendations were almost exclusively based on what was now shown to be fraudulent science, the Review did not recall and amend their recommendations?

It remains the fact that there has not been a single confirmed case of human cloning anywhere in the world, and certainly no case even claiming to have obtained stem cells from cloned embryos. There has been no significant 'advance' since 2002. The only case to have been published in a peer-reviewed scientific journal was the Korean cloning fraud. Other claims – from the UK and China – have not been confirmed or given the status of a peer-reviewed finding, and therefore cannot be considered authentic under normal medical standards of research.

The report shows that the Lockhart Committee's recommendations to lift the ban were based not on any scientific advance, but on two things outside their brief: their own ethical prejudice that it is acceptable to create embryos solely for research, and their unsubstantiated fantasies of what cloning might potentially achieve. That is not what their terms of reference required of them.

> … the Committee's considerations appeared to be based around *the potential* of SCNT for the treatment of illness *and the Committee's own resolution of the ethical issues* rather than an assessment of the state of the science as at a certain point in time. (emphasis mine)

In summary, the **mpconsulting** report reminds us that there has been no significant scientific advance to make the case for cloning any better than it was in 2002. The only new development since 2002 has been the granting of undue decision making power to an unelected and unrepresentative group of six citizens. A group who share the same radical ethical mindset in favour of permitting cloning, and animal-human hybrids, and any other inhuman experiment that scientists might request.

This report confirms that there is no new scientific reason to permit cloning – only the old speculative and dishonest justification, used to great effect in 2002, that miracle cures for Alzheimer's are sure to come if only you allow scientists to clone, hybridise with animals, and in other ways further violate our humanity.

The public and our legislators were fooled once; to listen to the Lockhart Lobby recommendations would be to be fooled twice. The **mpconsulting** critique helps us see how groundless – scientifically as well as ethically - the Lockhart recommendations really are.

2. On the second term of reference, changes in community attitudes:

Why did the Review fail to mention that over 80% of all submissions it received were opposed to cloning? An unwanted indicator of public opinion? DO NO HARM had to undertake this tedious research ourselves.

More importantly, why did the committee ignore the one major piece of published research, that of Swinburne university in 2004,[xxxiv] which found a substantial majority of us – 63% - did not feel comfortable with scientists cloning embryos for stem cells? The Committee preferred to be guided by a non-academic phone poll conducted by the industry group Biotechnology Australia.

The neglect of the Swinburne research is academically unprofessional, at the very least. It is cynical suppression of the truth at worst.

But if the political purpose of Skene, Schofield, Kerridge et al was to use the high ground of an advisory committee to 'lobby' for their own radical preference on cloning, would we expect them to revise their scientific recommendations when they were found to be based on fraud? Would we be surprised if they declined to give a guernsey to an unwanted study which found *"good evidence to conclude that the Australian public do not feel comfortable with scientists cloning human embryos for research purposes"?*

And further, a study which found that the opposition to cloning *did NOT correlate with the 'religiosity' of the sample groups.* That the discomfort with letting scientists create new human embryos solely for research is a basic human revulsion against the violation of something humanly – not 'religiously – sacred.

Conclusion on the Lockhart Review:

The suppression of the Swinburne study is a scandal that should on its own be sufficient to sink the Lockhart Review as a pro-cloning tract, not an impartial Review. When combined with the failure to revise their pro-cloning recommendations in the light of the Hwang fraud, upon which the other 'scientific advances' term of reference was largely founded, the Review is indeed seen to be a shabby piece of lobbying dressed up as 'impartial expert advice'.

One thing we know: that among these six citizens there was not a single person who defended the humane ethical principle that carried the unanimous vote of Parliament in 2002 – that it is simply wrong to create new human embryos with the sole purpose of research.

And therefore, at the heart of the cloning question, the committee was unrepresentative – in short, ethically biased – and while they are welcome to their radical opinions, and while their Review is an interesting essay from the perspective of the utilitarian school of ethics, they must not pretend to be speaking for the public, nor presume to overturn the considered ethical judgment of Parliament.

5. Why the Patterson Bill is a violation of our humanity

Senator Patterson's Bill does more than just allow the unethical cloning of human embryos with their destruction in mind. It allows scientists to create animal-human hybrid embryos, it allows scientists to create human embryos with more than two genetic parents, and it allows scientists to create human embryos where one of the parents is an aborted human foetus.

Under her Bill aborted baby girls could become mothers of human embryos that will themselves be killed for research!

This is sick science; this is a moral assault on our humanity, and on the inviolable right of any living human being not to be exploited and killed as subhuman material.

Senator Patterson is asking her colleagues to follow her lead in abandoning their united ethical position of only four years ago. In 2002 the Parliament voted to allow research on 'spare' IVF embryos who were 'going to die anyway', but it unanimously declared it was wrong to create new human embryos solely for research, whether by cloning or any other means. Paterson was amongst the most outspoken opponents of such an abuse.

She stated in 2002: "I believe strongly that it is wrong to create human embryos solely for research", yet today she tables a Bill permitting the creation of human embryos, by a range of morally degraded methods, solely for research.

She stated in 2002: "It is not morally permissible to develop an embryo with the intent of truncating it at an early stage for the benefit of another human being", but now what was impermissible is suddenly permissible – and no explanation for this ethical backflip is given!

She assured us in 2002 that there would be no slippery slope: that because "the Prohibition of Human Cloning Bill 2002 bans the creation of a human embryo for a purpose other than achieving a pregnancy" therefore "it is disingenuous to suggest that approving this research will open the door to further killing of living human beings". Now she proposes the further killing of any number of living human beings – whether created by SCNT cloning, or from the eggs of aborted human babies, or hybridized with animals, or from multiple parents.

Conclusion

Our Parliament is faced with a clear choice: it can declare again, as in 2002, that it is wrong to create human embryos with their destruction in mind, or it can abandon this just and humane ethical position, instead supporting Patterson's misguided and dehumanising proposal to create and kill human embryos on the altar of speculative science.

Appendix 1: Comic relief – commentary on Senator Patterson's unfortunate documents [xxxv]

Even a tragic Shakespearean drama needs some jesters to lighten it up…

In the human tragedy which is cloning, this light relief has been provided by Senator Patterson's risible list of documents which, presumably, she thinks support the scientific case for cloning!

In fact, such is the muddle of people of good will like the author of this Bill, that she has presented a set of documents that between them do a fairly good job of demolishing the case for cloning.

It is worth reflecting for a moment: if this is truly the best that the cloning lobby can cobble together – and it is – then does that not confirm, in an entirely unexpected way, the criticism from opponents that cloning is largely a 'con science', a mirage of hysterical claims and cruelly false hopes, an unsubstantiated wish list put up by those who have nothing more substantial to offer?

DO NO HARM: Australians for Ethical Stem Cell Research is grateful for the expert analysis of a senior Australian medical scientist in analysing the documents tabled by Senator Patterson in support of her cloning Bill.

This scientist was astounded to find that, out of a careful selection of 'the best of the best' documents that might give some substance to the case for cloning, "Not one of these papers provides scientific material that supports the need for therapeutic cloning, and in some cases the material is quite irrelevant to the issue".

If **DO NO HARM** has the opportunity to present further evidence at a Senate hearing, I will be happy to elaborate on these articles. For now, and for the entertainment of members of the Senate Community Affairs Committee, let me submit the summary critique:

1. Chang, J et al, Correction of the sickle cell mutation in embryonic stem cells. ***PNAS, vol.103(4) pp 1036-1040 January 24 2006.***
This is not a therapeutic cloning paper, and is not particularly relevant to the current debate, but rather to the application of gene therapy. It reports the use of genetic engineering to correct an abnormality that had been introduced into a mouse gene and leading to sickle cell anaemia. The authors made ES cells from the mice by SCNT, corrected the gene defect and showed that the blood-forming cells could now form normal haemoglobin. Such an approach to gene therapy could theoretically be used for many single-gene defects. It is not clear that the starting point needs to be ES cells however, rather than (adult) haemopoietic stem cells.

2. Stojkovic, M et al, Derivation of a human blastocyst after heterologous nuclear transfer to donated oocytes.
Reproductive Biomedicine Online, 2005 Aug 11(2) pp 226-31
This provides no argument for the need for therapeutic cloning – rather, it describes unsuccessful attempts to do so. This is a technical paper from the Newcastle-Upon-Tyne group published rapidly in this online journal at the time of the claim (soon shown to be fraudulent) by the South Korean group to have developed patient-specific cell lines by SCNT. What this paper shows is that they were able to conduct nuclear transfer of a human ES cell nucleus to an enucleated to ovum, and develop a blastocyst, but take it no further. They had one success in 36 attempts, and concluded that they need ova within one hour of collection. None of this has been reported in any adequately peer-reviewed journal, and apparently it remains the case that they have not developed human cell lines by SCNT (therapeutic cloning).

3. Klimanskaya, I et al, Human embryonic stem cell lines derived from single blastomeres.

Nature online August 23, 2006 This paper has no relevance to the need or otherwise for therapeutic cloning. It describes the establishment of ES cell cultures from single cells removed at the 8-cell embryo stage, such as can be obtained with the procedure of "Preimplantation Genetic Diagnosis" (PGD), where a single cell can be taken at the 8-cell stage to make a genetic diagnosis in high risk cases. If this became much more efficient than shown in this paper, it could provide for establishment of ES cell lines derived from IVF embryos that are not chosen for implantation on the basis of e.g. genetic disorder. It would thereby have the potential therefore of application to the study of a select number of single gene diseases. Although PGD is high risk, it is undertaken for specific reasons. The legislative requirement for this would be to allow work on embryos rejected at PGD as unsuitable for implantation.

4. Takahashi, K and Yamanaka, S, Induction of pluripotent stem cells from mouse embryonic and adult fibroblast cultures by defined factors.

Cell, Vol 126, 1-14, Aug 25 2006

If ever a new approach were to abolish the need for therapeutic cloning, this is it. The paper reports that it is possible to "reprogram" an adult cell by providing it with a set of specific genes - 4 in number - and finish with cells that can behave virtually as ES cells in the tests that were applied. This is work carried out in mouse cells, it obviously needs to be confirmed, and there will be much more to be done to refine the method and establish whether the reprogramming is complete, and fully reproduces the ES cell. What can be said though, is that it is an exciting "proof of concept" that a pluripotent cell could be generated from an adult cell without cloning. It remains to be translated to human cells, and the approaches used for the mouse work will be invaluable in informing that work.

5. Barberi, T et al, Neural subtype specification of fertilisation and nuclear transfer embryonic stem cells and application in parkinsonian mice.
Nature Biotechnology, vol 21(10) October 2003

In this paper either standard mouse ES cells or cloned ES cells were used to treat chemically induced Parkinson's disease in mice. There was no advantage gained with the cloned cells, although there were only 6 mice per group, possibly because the brain is a relatively "immune privileged" site. This experiment was only of 8 weeks duration, thus insufficient to provide for development of tumours, which have occurred so commonly in recipient mice in other published experiments. Any proof of therapeutic concept such as this must be prolonged sufficiently to allow a conclusion about safety.

6. Blelloch, R et al, Nuclear cloning of embryonal carcinoma cells.
PNAS Sept 28 2004, vol 101(39) pp13985-13990.
This very interesting work transfers the nucleus of a primitive mouse cancer to an enucleated ovum, and both therapeutic and reproductive cloning were carried out. The tumour cells retained their malignancy, and embryos died or were abnormal. Previously these same scientists carried out similar experiments, using nuclear transfer from mouse melanoma tumours to create embryos. The melanoma malignancy first appeared to regress, but then all embryos and mice developed tumours. These approaches could be very informative about the genetic changes in cancer, **but they have no relevance to the need for therapeutic cloning in Australia**. It would be absolutely essential that all such work be confined to mouse models for the foreseeable, and probably very long-distant future. A major reason is that meaningful research along these lines can only be carried out if the generated embryos are allowed to develop much further, including in vivo after implantation into the uterus.

7. Strelchenko, N et al, Reprogramming of human somatic cells by embryonic stem cell cytoplast.

Reproductive Biomedicine Online, 2006 Jan; 12(1), 107-11.

This online paper describes an attempt to bypass the need for therapeutic cloning. It is a preliminary technical report, in which the authors are seeking to find factors in ES cells that can be used to "reprogram" adult cells to behave like ES cells. They fused ES cells with adult cells and found some evidence that they could transfer some "stem " behaviour to the adult cells, but they finished with a mixture of cells , fused and non-fused, that were clearly difficult to work with. The reprogramming work by Takahashi and Yamanaka (above) is at a more advanced stage of achievement, although still in mouse cells.

8. Cooper, D, The Lockhart Review: Where now for Australia?
(2006) 14 JLM 27.

The PhD student author in this superficial analysis embraces warmly the full recommendations of the Lockhart Committee Report, quoting selectively from it, including no comment on its many shortcomings, and concluding that "the potential benefit to countless Australians of stem cell therapies should be accorded more weight than the objections of some sections of the Australian community…"

Appendix 2: An example of Australian Adult Stem Cell Research

(An extract from published University material; DO NO HARM has no connection with Griffith University)

Stem Cell Research

Are the solutions under our nose?

For some time now the issue of Stem Cell research has been the centre of somewhat controversial debate. However, Griffith University is now undertaking preclinical research using adult stem cells that are readily available, adaptable, safe, non-controversial and potentially life-changing.

Adaptable

Griffith has successfully shown that adult stem cells harvested from the human nose (olfactory cells) have similar capabilities to embryonic stem cells I.e. being able to develop into new brain cells, liver cells, heart cells, kidney cells and muscle cells.

Available

Olfactory stem cells are easy to grow-

- Readily available in every individual of all ages
- Easily harvested from patient's own nose
- Can be grown from tissue samples within two weeks
- Millions of cells already grown by research team from small samples
- Good candidates for cell transplantation therapies and tissue reconstruction.

Safe

Olfactory stem cells can be grown without animal cells –

- Eliminates risk of transfer of animal genes or viruses during the growth of the stem cell.

Safe

Olfactory stem cells do not seem to grow in an uncontrolled way –

- More controllable during growth in lab dish or after transplantation

• May be excellent candidates for cell therapies as they do not seem to form tumours or teratomas.

Therapeutic potential

Olfactory stem cells have potential for "autologous" therapies –

• The patient's own cells are removed, grown and transplanted back into the same patient

• Avoids the problems of immune system rejection when foreign cells are transplanted

• Eliminates the need for immune-suppressing drugs to prevent rejection

• Eliminates ethical issues of foreign or foetal transplants.

Biotechnological potential

Olfactory stem cells can be taken from people with diseases for studying causes and treatments *without the use of therapeutic cloning*-

• The research team is already using them to investigate Parkinson's disease, schizophrenia, motor neurone disease and epilepsy

• Will be candidates for drug discovery.

Results now

Other olfactory cells are already being used in transplantation research-

• In 2002, Professor Mackay-Sim, with colleagues from the Princess Alexandra Hospital, commenced a world-first phase 1 clinical trial into spinal cord regeneration.

This uses olfactory ensheathing cells. The trial is ongoing.

IN SUMMARY:

Adult stem cells offer many exciting possibilities for cell transplantation therapies and biotechnology, without being overshadowed by technical and ethical issues.

Griffith is a world leader in researching adult stem cells from the nose. These cells are easily accessible and can be grown in great quantities from all adults.

This research provides opportunities for moving adult stem cells quickly towards therapeutic and biotechnological outcomes, and positioning Australia as a world leader in this field.

END.

ENDNOTES

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[ii] ISSCR on 'cloning' and SCNT: http://isscr.org/meetings/2004_Meeting.htm

[iii] *Nature* editorial: "Playing the Name Game", 7 July 2005

[iv] Kass, New York Times, May 29th 2005.

[v] Trounson on animal human hybrids: http://www.theage.com.au/news/National/Let-us-create-diseased-stem-cells--researcher/2005/06/04/1117825104834.html

[vi] American Society for Reproductive Medicine Ethics Committee; "Human somatic cell nuclear transfer (cloning)"; *Fertility and Sterility* 74, 873-876; November 2000

[vii] Robert Lanza et al., "Long-Term Bovine Hematopoietic Engraftment with Clone-Derived Stem Cells," *Cloning and Stem Cells* 7 (June 2005): 95-106.

[viii] Lanza press release: http://www.advancedcell.com/press-release/somatic-cell-nuclear-transfer-gives-old-animalsyouthful-immune-cells

[ix] http://www.stemcellresearch.org/facts/treatments.htm

[x] Williamson: http://www.smh.com.au/news/opinion/a-line-is-drawn-on-human-cloning/2006/01/02/1136050387223.html

[xi] Griffith research: http://www.gu.edu.au/er/development/content_icmt_adultstem.html

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[xvii] Griffith Parkinson's research: http://www.gu.edu.au/er/development/content_icmt_parkinsons.html

[xviii] Diabetes: http://www.stemcellresearch.org/facts/DiabetesASvsES.pdf

[xix] Heart treatments: http://www.stemcellresearch.org/facts/HeartASvsES.pdf

[xx] Parkinsons: http://www.stemcellresearch.org/facts/Parkinsons-ASvsES.pdf

[xxi] Spinal cord injury: http://www.stemcellresearch.org/facts/ASCRvESCRSpinalCordNEWVersion.pdf

[xxii] ABC 7.30 Report: http://www.abc.net.au/7.30/content/2006/s1708846.htm

[xxiii] http://www.washingtonpost.com/wp-dyn/articles/A29561-2004Jun9.html

[xxiv] Mackay-Sim submission to Lockhart. See also: http://www.news.com.au/couriermail/story/0,,20218084-5003419,00.html

[xxv] Prof TJ Martin FRS: http://www.theage.com.au/news/opinion/ethical-stem-cell-research/2006/07/24/1153593266100.html?page=fullpage

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